

**HENRY PARSONS & SON,**  
**Machinists. Engines**  
 and Manufacturers of  
 THE "ECLIPSE" Sole Leather  
 Cutter and all kinds of Boot & Shoe  
 Machinery, Public & Private Build-  
 ings Fitted with Steam Apparatus.  
 Shafting & Self Feeding Adjustable Hangers.  
 and ELEVATORS.

REPAIRING OF  
 STEAM ENGINES  
 A  
 SPECIALTY

348 Lincoln St., Marlboro, Mass. Feb 7, 1907

W C F Choate Jr.  
 Southboro

Dear Sir:-

I propose to set up your stone crusher and  
 iron screen of steel plate punched for three grades of  
 stones, with 27' of heavy chain and steel buckets to carry  
 stones to screen and furnish foundation timbers for  
 crusher and screen, also dig pit for chain carrier, stone is  
 up also furnish the belting and pulleys necessary  
 furnish a strong and suitable bin to hold about twenty  
 tons of crushed stones, with three iron shoots all set up  
 complete for the sum of Four hundred and Ninety five  
 dollars (\$495<sup>00</sup>.) You to cart the crushed to such a place  
 as you select and furnish about three loads of stone  
 for foundation

Yours truly  
 Henry Parsons & Son

The engine and the boiler was contracted for previous.



# Commonwealth of Massachusetts

## ANNUAL CERTIFICATE

OF

## STEAM BOILER INSPECTION

As required by Chapter 146, General Laws



### Department of Public Safety — Division of Inspection

Boiler No. 27572  
Mass. Std. # 1355

Date of Inspection April 14, 19 25.

This is to Certify that the herein-described steam boiler inspected by

### Division of Inspection

may be operated at a Pressure not to exceed 150 pounds per square inch.

Name of owner Town of Southboro Type of boiler Locomotive  
Location of boiler Town Road Roller, Southboro, Mass.  
Year built 1925 Built by Buffalo-Springfield  
Length of shell or drum 10 ft. 3 in. Diameter of shell or drum 28 in.  
Lowest tensile strength of shell plates 55000 lbs. per sq. in. Number and size of tubes 51-1 3/4" x 4' 1 1/4"  
Thickness of shell plates 7/16 in. Thickness of heads 3/8 in.  
Style of longitudinal joint in shell or drum Double Butt  
Percentage of strength of longitudinal joint 81% Location of fusible plug Crown

Division of Inspection

John W. Clunfett CHIEF OF INSPECTIONS

Signature Herbert E. Mitchell  
Boiler Inspector

In accordance with section 23, chapter 146, General Laws, notify this department at once if any defect is discovered.

POST UNDER GLASS IN CONSPICUOUS PLACE IN ENGINE OR BOILER ROOM.



# PROPOSAL

FROM

The Buffalo-Springfield Roller Company  
SPRINGFIELD, OHIO

March 26, 1925.

19

To Board of Selectmen,

TOWN OF SOUTHBORO, Massachusetts.

We hereby propose to furnish at price and terms named below:

ONE (1) LATEST TYPE STANDARD 29,000# BUFFALO STEAM ROLLER

EQUIPPED WITH BUFFALO SPRINGFIELD PRESSURE SCARIFIER, as per

specifications hereto attached, for the sum of fifty-nine hun-

dred and ninety dollars (\$5990) f. o. b. Southboro, Mass.,

Payable in the following manner: Cash thirty (30) days after  
delivery of roller.

*The rolls on this Roller are guaranteed to  
wear over a period of eight years.  
Roller to have a full set of 5-6 wheel picks  
no short picks required.  
Name plate - Town of Southboro.*

## GUARANTEE

We guarantee said roller if properly operated to have ample power to do any and all kinds of work for which it is intended, to be made of the best materials and workmanship, and to be durable with proper care. We further agree to furnish free of charge for the period of one (1) year from date of delivery, any part that may prove to be defective in workmanship or material, upon receipt of notice and return of such defective part to our works. No verbal agreements or understandings not mentioned in this proposal shall be binding.

Accepted

This 27<sup>th</sup> day of March 1925 -

*Raymond H. Overton*

*Francis D. Norton*

*Charles F. Choate 3<sup>d</sup>*

THE BUFFALO-SPRINGFIELD ROLLER CO.

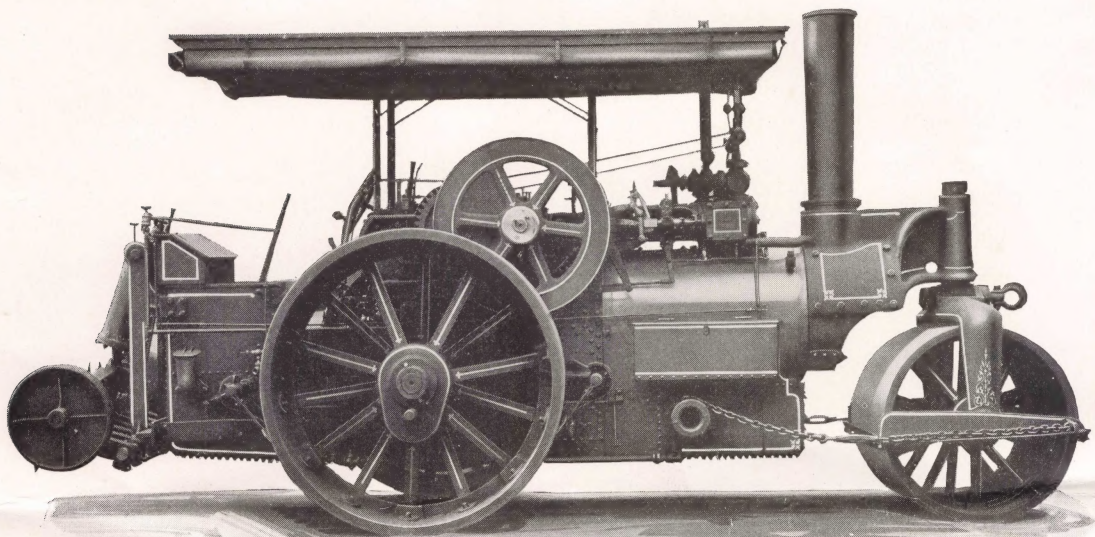
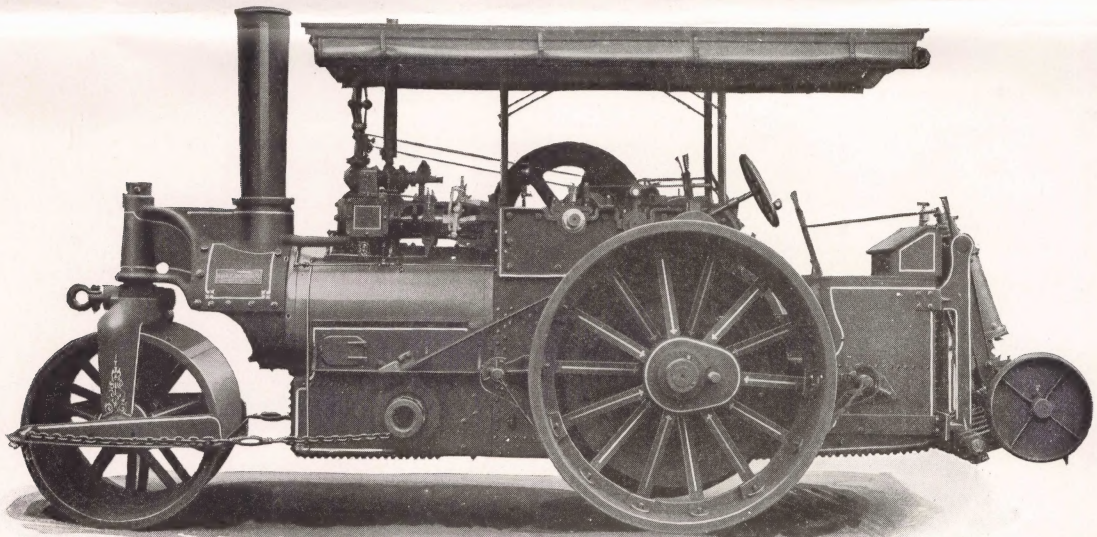
By

*C. F. Paul*

*Selectmen of Southboro*



SPECIFICATIONS  
OF A  
Buffalo-Pitts Three Wheel Steam Roller  
WITH  
Buffalo-Springfield Pressure Scarifier



BUILT BY  
The Buffalo-Springfield Roller Co.  
SPRINGFIELD, OHIO  
U. S. A.



SPECIFICATIONS  
FOR  
**Buffalo-Pitts Steam Roller and  
Pressure Scarifier**

---

**BOILER**

Locomotive style made from extra heavy plate, far exceeding the standard requirements for boiler construction to carry the same steam pressure. The plate is made of the best quality, open hearth homogeneous fire-box steel, the chemical properties of which conform to the following limits:

Phosphorus does not exceed.....	Acid	0.04 percent
Sulphur does not exceed.....		0.05 percent
Manganese.....	0.30 to	0.50 percent

and all plates conform to the following physical qualities.

Tensile strength pounds per square inch..... 52,000 to 63,000

Yield point, in pounds per sq. in. is not less than  $\frac{1}{2}$  T. S.

Elongation in 8 inches is not less than..... 26 per cent.

Each plate and head is distinctly stamped by the manufacturer in at least four places, with the name of the manufacturer, place where manufactured, brand and lowest tensile strength. Each boiler bears a serial number, and full date reports showing like serial number will be issued at the request of the purchaser, covering all physical and chemical properties of the material in plates, heads and stay bolts. The longitudinal joints of the boiler are of the butt and double strap construction. All piping between injectors and boilers is of brass.

**TEST**

Boiler is tested by hydrostatic pressure, to 50% greater than steam pressure to be carried and guaranteed perfectly tight.

**FIRE  
BOX**

The firebox is constructed of the best quality of fire-box steel plate, strongly and closely stayed, the shell double riveted where sideplates connect to shell. Large hand holes are supplied both above and below the tubes, about the crown sheet and in the water legs, making the boiler thoroughly accessible for cleaning.

**STEAM  
PRESSURE**

The boiler is so constructed as to be allowed a working steam pressure of 150 pounds to the square inch, under the A. S. M. E. and all state boiler rules.

**GRATES**

Rocking grates are operated by a lever from the platform, enabling the engineer to clean and liven the fires without opening the furnace door or stopping the machine.

**ASH PAN**

Equipped with dumping bottom, operated from the platform by means of a lever enabling the engineer to keep the pan free from ashes without stopping the machine, thus preventing the hot coals from burning out the grates.

**ENGINE**

Is furnished with double cylinders. Both cylinders are cast in one piece, together with the crosshead guides and valve chambers. The crosshead guides and cylinders are centrally bored at one operation, insuring absolutely perfect alignment as to crosshead guides, cylinders and valves of the machine.

**VALVES**

Are of the standard flat locomotive type, made from close grained charcoal iron, accurately scraped and fitted, guaranteed perfectly tight and are on the exterior of the cylinders, that they may be easy of access and may be removed without difficulty, if necessary.



**VALVES** The engine is furnished with Stevenson link valve gear, and the link, link  
**MOTION** blocks, and pins are all forgings carefully fitted and case-hardened.

**CRANK-** Is made of hammer-forged steel and supported by three bearings—the center  
**SHAFT** one being between the cranks—and so mounted as to receive longitudinal thrust  
without causing vertical strain due to expansion of boiler.

**CONNECT-** Are made of fine grade of forged steel, fitted with phosphor bronze boxes,  
**ING RODS** easily adjustable for wear and all parts are of the most approved design and pattern.

**GEARS** The roller is provided with two speed gearing, so that by simply shifting a  
lever, the gears may be changed from fast to slow or vice-versa.

The teeth of the crankshaft pinion, first counter shaft gear, and all pinions  
and gears in the speed changing device are machine cut from high carbon forgings,  
making a noiseless and smooth running transmission. The gears are of large  
diameter and wide face to insure longevity, and are protected by dust covers and  
provided with self-feeding oil boxes.

**STEAM** A large steam space is located between the cylinders and so constructed as  
**SPACE** to furnish live, dry steam for the cylinders without condensation, and so arranged  
as to jacket the cylinders with hot steam, a great advantage in cold weather. The  
throttle valve and governor are located on top of the cylinders making only three  
face-joints in the entire arrangement so as to reduce to a minimum the possibility  
of leaking and necessity for repair. There are no screw thread steam connections  
between boiler and cylinders.

**THROTTLE** The throttle is of the double opening type, so arranged that the secondary  
or auxiliary opens moderately for the first  $\frac{1}{4}$  inch of travel before the main valve  
is removed from its seat, thus avoiding all sudden shocks and strain on the gears  
and shafting from the quick opening of the throttle by careless operators.

**GOVERNOR** The roller is equipped with a governor to regulate the speed of the engine, a  
governor being absolutely necessary when the engine is used to drive a stone  
crusher or other machinery.

**FORE** The front carriage includes forged steel king post, forged steel swivel pin,  
**CARRIAGE** cast steel yoke, forged steel front axle and two front roll sections, each bushed  
with two heavy phosphor bronze bushings.

**ROLLS** The rims of the front rolls and rear rolls are cast from a special mixture that  
gives extra tensile strength, and special toughness, which experience has proved  
to be best adapted to resist wearing and abrasion of surfaces and edges.

Standard diameter of front rolls.....	46 inches
Standard width of front rolls.....	51 inches
Standard diameter of rear rolls.....	69 inches
Standard width of face of rear rolls.....	20 inches
Weight without coal or water.....	31,000 lbs.
Weight with coal and water.....	34,000 lbs.

**SCRAPERS** The two rear rolls are fitted with automatic adjusting scrapers, controlled by  
springs, giving uniform pressure against the face of the rolls, keeping them clean  
without unnecessary wear on the blades.



**VALVES** The engine is furnished with Stevenson link valve gear, and the link, link  
**MOTION** blocks, and pins are all forgings carefully fitted and case-hardened.

**CRANK-** Is made of hammer-forged steel and supported by three bearings—the center  
**SHAFT** one being between the cranks—and so mounted as to receive longitudinal thrust  
without causing vertical strain due to expansion of boiler.

**CONNECT-** Are made of fine grade of forged steel, fitted with phosphor bronze boxes,  
**ING RODS** easily adjustable for wear and all parts are of the most approved design and pattern.

**GEARS** The roller is provided with two speed gearing, so that by simply shifting a  
lever, the gears may be changed from fast to slow or vice-versa.

The teeth of the crankshaft pinion, first counter shaft gear, and all pinions  
and gears in the speed changing device are machine cut from high carbon forgings,  
making a noiseless and smooth running transmission. The gears are of large  
diameter and wide face to insure longevity, and are protected by dust covers and  
provided with self-feeding oil boxes.

**STEAM** A large steam space is located between the cylinders and so constructed as  
**SPACE** to furnish live, dry steam for the cylinders without condensation, and so arranged  
as to jacket the cylinders with hot steam, a great advantage in cold weather. The  
throttle valve and governor are located on top of the cylinders making only three  
face-joints in the entire arrangement so as to reduce to a minimum the possibility  
of leaking and necessity for repair. There are no screw thread steam connections  
between boiler and cylinders.

**THROTTLE** The throttle is of the double opening type, so arranged that the secondary  
or auxiliary opens moderately for the first  $\frac{1}{4}$  inch of travel before the main valve  
is removed from its seat, thus avoiding all sudden shocks and strain on the gears  
and shafting from the quick opening of the throttle by careless operators.

**GOVERNOR** The roller is equipped with a governor to regulate the speed of the engine, a  
governor being absolutely necessary when the engine is used to drive a stone  
crusher or other machinery.

**FORE** The front carriage includes forged steel king post, forged steel swivel pin,  
**CARRIAGE** cast steel yoke, forged steel front axle and two front roll sections, each bushed  
with two heavy phosphor bronze bushings.

**ROLLS** The rims of the front rolls and rear rolls are cast from a special mixture that  
gives extra tensile strength, and special toughness, which experience has proved  
to be best adapted to resist wearing and abrasion of surfaces and edges.

Standard diameter of front rolls.....	46 inches
Standard width of front rolls.....	51 inches
Standard diameter of rear rolls.....	69 inches
Standard width of face of rear rolls.....	20 inches
Weight without coal or water.....	31,000 lbs.
Weight with coal and water.....	34,000 lbs.

**SCRAPERS** The two rear rolls are fitted with automatic adjusting scrapers, controlled by  
springs, giving uniform pressure against the face of the rolls, keeping them clean  
without unnecessary wear on the blades.



# Buffalo-Springfield Pressure Scarifier

PATENTED

---

## FRAME

The main frame consists of two extra strong and rigid steel castings, securely fastened at four points to the rear part of the roller with special steel bolts.

The upper frame fastening always has large bearing surfaces, to reduce the stress on the bolts to the minimum.

The lower end is attached to the draw-bar, which is fastened to the rear water tank of the roller and additionally braced by two horizontal side bars,  $4\frac{1}{2}$ " wide by  $\frac{1}{2}$ " thick forged steel. These side bars extend to and are fastened to the extension boiler plates.

## SHAFTS

The extreme top and bottom ends of the frame form bearing brackets for the cylinder shaft and fulcrum shaft.

The upper shaft supports the pressure cylinder, while to the lower shaft (3" diam.) the tooth arms are keyed and clamped.

Both the above mentioned shafts are mounted in wide, babbitt metal bearings.

One other shaft, located on the top of the tooth arms, serves as an axle for the ground wheels and as a pressure shaft connecting the cross-head with the tooth arms. This shaft is clamped in machined holes in the tooth arms.

## CYLINDER

The pressure cylinder is suspended by means of a special top cylinder head, which contains a long shaft bearing permitting the proper swinging movement for the cylinder.

The lower cylinder head contains an opening for the piston rod and a large bronze packing nut is provided. Both heads are detachable.

The cylinder is cast of special close grained metal being of the same analysis as used for best engine cylinders. Special attention is given to finishing the interior walls because the utmost accuracy is necessary to hold the sustained pressure. Special equipment has been devised and built for this work.

After the cylinder has been assembled with heads, piston and piston rod, the assembled unit is placed in a special testing machine which operates under steam pressure and works in the piston rings to a perfect fit. The bore is 9 inch and cylinder length is  $20\frac{1}{2}$  inches.

## PISTON

The piston head is fitted with rings designed especially for this service for which patent is pending.

Piston rod is extra heavy, ground to  $2\frac{5}{16}$ " diameter. The piston packing is contained in a large stuffing box, which is fitted with a bronze packing nut.



## **CROSS HEAD**

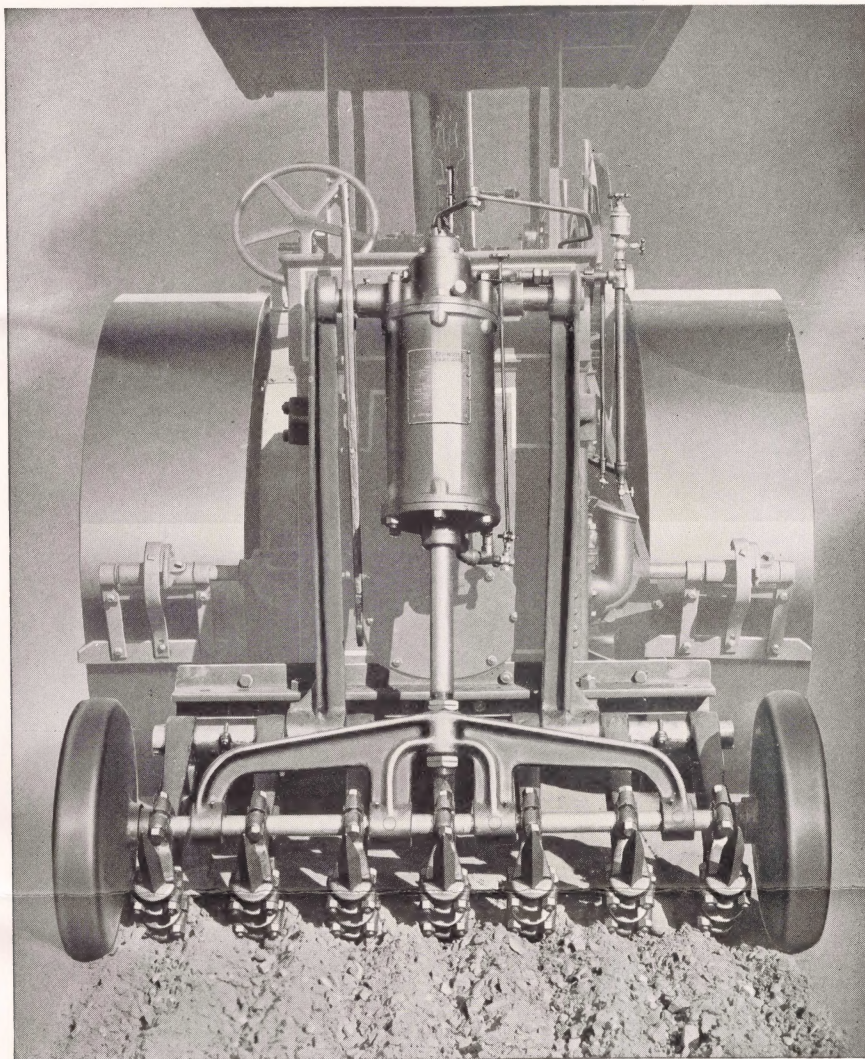
Connected at the lower end of the piston rod a four bearing cross head transmits the pressure to the tooth holder arms and distributes the pressure equally to all digging parts. The four bearing boxes are lined with high grade babbitt metal.

## **TOOTH ARMS**

Separate arms for the teeth or digging tools prevent clogging of road materials. Seven arms constitute a standard set for general road work. The front ends are clamped and keyed to the fulcrum shaft close up to the draw bar. The rear ends are shaped like a double fork to give a firm hold on the teeth, which are clamped by drop forged steel caps secured by four bolts, permitting easy adjustment for depth.

## **TEETH**

The teeth are hand forged from  $1\frac{1}{2}$  inch square steel of special analysis, found to be superior to manganese steel in resisting abrasion. Each tooth is pointed at both ends and extra length is provided so that it may be sharpened repeatedly.



## **GROUND WHEELS**

Solid cast wheels are placed at each end of the cross-head shaft and control the depth of cut to suit the user.

The rim is convex and the body of the wheel is so shaped as to prevent breakage by stone or other materials. The design is patented. Each wheel is fitted with two heavy phosphor bronze bushings.

Diameter of ground wheels,  $24\frac{1}{2}$  inches.



## POWER

The steam for power is piped direct from the roller boiler to a four-way throttle valve directly mounted on the cylinder head. This construction eliminates danger of loosening and breakage from vibration, also reduces number of pipe joints to a minimum. A steel reach rod extends forward to a throttle lever which is conveniently placed at the right hand side of the operator's platform.

## CONTROL

A slight movement of the controlling lever permits the pressure from the boiler to enter the top of the cylinder and forces the scarifier teeth downward into the street or road.

A reverse movement of the lever releases the pressure on the top of the piston and at the same time conveys the pressure to the lower side of the piston, thereby raising the scarifier from the work. A long hooked lever holds up the scarifier when pressure is shut off.

## ELASTICITY

The fluid pressure in the long stroke cylinder gives the required elasticity to maintain uniform depth of cut on uneven surfaces and serves as an automatic safety relief in case of striking hidden obstacles. It also absorbs the vibration and shock on rough work.

## Tools and Supplies Furnished

- |   |   |
|---|---|
| 1 Sledge Hammer.  | 1 $\frac{1}{2}$ " soft plug.                                |
| 1 Cold Chisel.  | 1 $\frac{1}{4}$ " Drip cock, Fig. 548.                      |
| 1 $1\frac{3}{4}$ " Duplex Flue Cleaner.                       | 1 Brass Filler Can.   |
| 4 $\frac{5}{8}$ " Hex. Nuts.                                  | 1 Brass Squirt Can.   |
| 6 $\frac{1}{2}$ " Hex. Nuts.                                  | 1 $\frac{5}{8}$ x $5\frac{1}{2}$ " Water Glass and Gaskets. |
| 1 Ball Wicking.   | 1 $1\frac{1}{2}$ x 15'—2" Governor Belt and Lace.           |
| 1 Box Packing, Viz: 4 $1\frac{1}{8}$ x $1\frac{7}{8}$ .       | 1 Pop Valve 33" long.                                       |
| 6 $\frac{3}{4}$ x $1\frac{7}{8}$ .                            | 14 Curtain straps.  |
| 1 $1\frac{1}{2}$ " Consolidated Pop Valve 150 lb. and Bonnet. | 1 Wood Platform.  |
| 1 1" Mall. St. elbow.   | 1 Flue rod.   |
| 1 1" J. B. Gate Valve 250 lb. Extra heavy.                    | 1 Poker.  |
| 1 1" Homestead blow-off cock and wrench.                      | 6 Wheel plugs packed in pick box S0535 Loose.               |
| 1 1" Close Brass Nipple, extra heavy.                         | 1 $2\frac{1}{4}$ x 8 Jack Screw, packed in smoke box.       |
| 1 Combination wrench.   | 1 $1\frac{1}{4}$ " Funnel, packed in smoke box.             |
| 1 Governor wrench.  | 1 25' Suction Hose.   |
| 1 No. 4 Drop Forge Wrench.                                    | 1 Strainer.   |
| 1 No. 5 Drop Forge Wrench.                                    | 1 1" Kewaunee Union.  |
| 1 No. 35 Drop Forge Wrench.                                   | 1 Scoop.  |
| 1 No. 9476 Mall. Wrench.                                      | 1 2-qt. can machine oil.                                    |
| 1 No. 43 Drop Forge Wrench.                                   | 1 2-qt. can cylinder oil.                                   |
| 1 S1304 Mall. Wrench.   | 1 Y-15157 Spanner Wrench.                                   |
| 1 S9454 Stuffing Box Wrench.                                  | 1 MR-229 Wrench.  |
| 1 $\frac{1}{4}$ " Brass St. elbow.                            | 1 5 lb. can Pitts Special Road Roller Grease.               |
| 1 $4\frac{1}{2}$ " Steam Gauge and siphon, also coil siphon.  | 1 1 lb. can Pitts Special Gear Grease.                      |
| 3 Padlocks.   | 2 lbs. White Waste.   |

## For Scarifier

- |                             |                      |
|-----------------------------|----------------------|
| 14 Double-end Ground Teeth. | 4 Brass Oilers.      |
| 1 Socket Wrench.            | 5 Grease Cups.       |
| 1 Piston Wrench.            | 1 Lubricator.        |
| 1 Spanner Wrench.           | 1 Double-end Wrench. |



# SPECIFICATIONS

FOR

## Buffalo-Pitts Steam Roller with Scarifier



— Built By —  
**THE BUFFALO-SPRINGFIELD ROLLER CO.**  
SPRINGFIELD, OHIO  
U. S. A.